Remarks

The Office Action mailed November 21, 2002 has been received and reviewed. Claims 1, 6, 10, 12, and 17 have been amended and new claims 36-38 presented. As a result, claims 1, 3, 6-21, 28, and 36-38 are pending in the application. Reconsideration and withdrawal of the rejections are respectfully requested

Double Patenting Rejection

Claims 1, 3, 6-21, and 28 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-57 of U.S. Patent No. 6,479,297. Upon an indication of otherwise allowable subject matter and in the event this rejection is maintained, Applicant will provide an appropriate response to address this rejection.

The 35 U.S.C. § 102 Rejections

GB 1,151,482 to Hacman

The Examiner rejected pending claims 12, 15-17, and 19-20 under 35 U.S.C. §102 as being anticipated by GB 1,151,482 to Hacman (hereinafter "Hacman"). Applicant respectfully traverses this rejection.

Applicant respectfully submit Hacman fails to anticipate the subject matter of independent claims 12 and 17 because Hacman fails to teach each and every element as set forth in the claims. For example, Hacman fails to teach, besides other things, a sensor for detecting an electrical conductive film comprising ruthenium that includes a detection surface that has a material on which the an electrical conductive film comprising ruthenium preferentially deposits. In contrast, Hacman recites that "it has been known to measure continuously the electric resistance of a thin metal layer growing on a base during the vapor deposition and to interrupt the vapour deposition, when a certain resistance value of the layer is reached" (page 1, lines 65-70). Hacman, however, does not teach a detection surface that comprises a material on which an electrical conductive film comprising ruthenium preferentially deposits, as recited in claims 12 and 17.

It is asserted in the Office Action that glass is a material on which ruthenium preferentially deposits from the gas phase. A portion of the specification and claim 19 are recited in support of this assertion. Applicant disagrees.

Nowhere does the application identify that "glass" is a material on which ruthenium preferentially deposits (including the cited passage in the specification). That the "detection surface comprises glass" as recited in claim 19 does not serve as an admission by Applicant that glass is a material on which an electrical conductive film comprising ruthenium preferentially deposits. Rather, claim 19 indicates that a detection surface may include glass, but does not serve as an indication that glass itself is a material on which an electrical conductive film comprising ruthenium preferentially deposits.

If the Examiner disagrees with Applicant's analysis, Applicant respectfully request further clarification/support for this assertion be identified and discussed by the Examiner to allow Applicant an opportunity to fully address the issues raised.

In addition, Hacman fails to teach a detector measuring electrical conductivity between the first and second electrodes, where the detector generates an alert when an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes, as recited in claims 12 and 17. In contrast, Hacman recites "a method for surveying the temperature of the bases to be deposited upon from the vapour phase during the deposition of thin layers, which method allows a reliable determination of the moment, which is correct for beginning the vapour deposition after a preceding heating of the base" (page 1, lines 48-55). Hacman provides that "control devices may be used, which permit vapour deposition only, when the resistance value of the base surveyed has dropped to a predetermined value" (page 2, lines 68-71). Hacman, however, fails to teach that the control devices are used during vapor deposition (e.g., "[m]easuring the electric resistance of layers deposited from the vapour phase is outside the scope of the present invention" page 2, lines 46-49). Thus, Hacman fails to teach generating an alert when an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes, as recited in claims 12 and 17.

Applicant submits that claims 15-16 and 19-20, all of which are dependent on independent claims 12 and 17 and recite additional limitations, are otherwise allowable for at least the reasons set forth herein.

In view of the above, reconsideration and withdrawal of the rejection of pending claims 12, 15-17, and 19-20 under 35 U.S.C. §102(b) as being anticipated by Hacman is, accordingly, respectfully requested.

FR 1576658 to N.V. Philips

The Examiner also rejected pending claims 12, 15-17, and 19-20 under 35 U.S.C. §102 as being anticipated by FR 1576658 to N.V. Philips (hereinafter "Philips"). Applicant respectfully traverses this rejection.

Philips fails to anticipate the subject matter of claims 12 and 17 because Philips fails to teach each and every element as set forth in the claims. For example, Philips fails to teach, besides other things, a sensor for detecting a gas phase material comprising ruthenium that includes a detection surface that has a material on which an electrical conductive film comprising ruthenium preferentially deposits. In contrast, Philips recites that "metals suitable for application as sources to be oxidized are in order chromium, tantalum, molybdenum . . . [t]he alloys of nickel and chromium are particularly well suited, for example, nichrome" (page 4, lines 13-15). Philips, however, does not teach a detection surface that comprises a material on which an electrical conductive film comprising ruthenium preferentially deposits, as recited in claims 12 and 17.

It is asserted in the Office Action that glass is a material on which ruthenium preferentially deposits from the gas phase. A portion of the specification and claim 19 are recited in support of this assertion. Applicant disagrees.

Nowhere does the application identify that "glass" is a material on which an electrical conductive film comprising ruthenium preferentially deposits (including the cited passage in the specification). That the "detection surface comprises glass" as recited in claim 19 does not serve as an admission by Applicant that glass is a material on which an electrical conductive film

comprising ruthenium preferentially deposits. Rather, claim 19 indicates that a detection surface may include glass, but does not serve as an indication that glass itself is a material on which an electrical conductive film comprising ruthenium preferentially deposits.

If the Examiner disagrees with Applicant's analysis, Applicant respectfully request further clarification/support for this assertion be identified and discussed by the Examiner to allow Applicant an opportunity to fully address the issues raised.

In addition, Philips fails to teach a detector measuring electrical conductivity between the first and second electrodes, where the detector generates an alert when an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes, as recited in claims 12 and 17. In contrast, Philips recites "a control" that is "a glass plate on which electrodes are deposited by evaporation, which are used to measure . . . the resistance of the deposited metal layer and that of the oxide layer formed from the metal layer" (page 5, lines 29-31). Philips provides that "[t]he source providing the evaporated metal is place on the disk (2) and consists of a meandering nichrome filament (5)" (Page 6, lines 4-5). Philips, however, fails to teach that a detector generates an alert when an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes, as recited in claims 12 and 17.

Applicant submits that claims 15-16 and 19-20, all of which are dependent on independent claims 12 and 17 and recite additional limitations, are otherwise allowable for at least the reasons set forth herein.

In view of the above, reconsideration and withdrawal of the rejection of pending claims 12, 15-17, and 19-20 under 35 U.S.C. §102(b) as being anticipated by Philips is, accordingly, respectfully requested.

Tyutnev et al.

The Examiner rejected pending claims 12-14, 16, and 20 under 35 U.S.C. §102 as being anticipated by Tyutnev et al. ("Concerning the Radiation-Induced Surface Conductivity in Polymers", Phys. Stat. Sol. (A) 86, 709 (1984)). (hereinafter "Tyutnev"). Applicant respectfully traverses the rejections.

Applicant respectfully submits Tyutnev fails to anticipate the subject matter of independent claim 12 because Tyutnev fails to teach each and every element as set forth in claim 12. For example, Tyutnev fails to teach, among other things, a sensor for detecting a gas phase material comprising ruthenium that includes a detection surface that has a material on which "an electrically conductive film comprising ruthenium preferentially deposits from the gas phase material comprising ruthenium" as recited in claim 12.

In contrast, Tyutnev has "conducted measurements of the radiation-induced surface conductivity using specially constructed samples" (page 714, first paragraph of "Experimental Results and Discussion" section). Tyutnev, however, does not teach a detection surface that comprises a material on which "an electrically conductive film comprising ruthenium preferentially deposits from the gas phase material comprising ruthenium" as recited in claim 12. In addition, Tyutnev fails to teach a detector measuring electrical conductivity between the first and second electrodes, where the detector generates an alert when an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes, as recited in claim 12.

Applicant submits that claims 13-14, 16, and 20, all of which are dependent on independent claim 12 and recite additional limitations, are otherwise allowable for at least the reasons set forth herein.

In view of the above, reconsideration and withdrawal of the rejection of claims 12-14, 16, and 20 under 35 U.S.C. §102(b) as being anticipated by Tyutnev is, accordingly, respectfully requested.

The 35 U.S.C. § 103 Rejections

The Examiner rejected pending claims 1, 3, 6-21, and 28 under 35 U.S.C. §103(a) as being unpatentable over Y. Koda et al. (Chem. Abstr. 1979, 90, abstrace 114382q., hereinafter "Koda") in view of Ohlsson et al. (J. Appl. Polym. Sci. 1990, 41, 1189-1196, hereinafter "Ohlsson") or Z. Yuan et al. (Chem. Mater. 1993, 5, 908-910, hereinafter "Yuan") and GB 1,151,482 to Hacman (hereinafter "Hacman"), FR 1576658 to N.V. Philips (hereinafter "Philips") or Tyutnev et al. (Phys. Stat. Sol. (A) 86, 709 (1984), hereinafter "Tyutnev"). Applicant respectfully traverses the rejections.

The Examiner asserts that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use the device and methods of Hackman, N.V. PHILPS or Tyutnev to detect the ruthenium compounds of Koda because of the recognized conductivity of the deposited materials as taught by Ohlsson or Yuan and the ability to measure them conductometrically will remove the need for radioactive materials in the detection." Applicant respectfully traverses these assertions.

The Examiner has asserted that the secondary references support a modification of the device and methods of Koda to conductometrically measure ruthenium as deposited in Koda to remove the need for radioactive materials in the detection. The proposed modification is based on the unsupported assumption that the methods of Koda would produce an electrical conductive film comprising ruthenium. However, nothing in Koda teaches or suggests that the ruthenium deposited on the polyethylene film would or could ever form an electrically conductive film. In fact, Koda uses neutron activation because it is recognized as being a highly sensitive elemental analysis technique used when the material to be detected is present in minute quantities (e.g., 1 and 5 ppb). Thus, one skilled in the art considering the use of nuclear activation for detection of trace amounts of ruthenium would not be motivated to replace this highly sensitive detection technique with a device or method that requires sufficient ruthenium to form an electrically conductive film.

In the context of this broad analysis, Applicant will now addresses the obviousness rejections in more detail below.

Independent Claims 1, 6, 10, 12, and 17

Applicant respectfully submits that the cited documents fail to support a proper *prima facie* case of obviousness with respect to independent claims 1, 6, 10, 12, and 17.

One of the requirements for a proper case of *prima facie* obviousness is that the cited references must teach or suggest all of the limitations of the rejected claims. In the present case, however, the cited documents fail to teach or suggest all the elements of claims 1, 6, 10, 12, and 17. For example, none of the cited references teach or suggest, among other things, the formation of "an electrically conductive film comprising ruthenium" on a material on which such a film preferentially deposits, in combination with generating an alert based on the detection of an electrically conductive film of a gas phase material comprising ruthenium, as recited in claims 1, 6 and 10.

In addition, Koda, Hacman, Ohlssson, and Yuan fail to teach or suggest a detector measuring electrical conductivity of a film of ruthenium between the first and second electrodes on a detection surface, where the detector generates an alert when an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes which is formed of a material on which an electrical conductive film comprising ruthenium preferentially deposits as recited in claims 12 and 17.

In contrast, Koda provides that ruthenium was captured on polyethylene film and detected using neutron activation, but fails to teach or suggest either a detector for measuring electrical conductivity between electrodes, or generating any type of an alert. Ohlsson teaches "staining with ruthenium tetraoxide confers sufficient electrical conductivity", but fails teach or suggest either a detector for measuring electrical conductivity between electrodes, or generating any type of an alert. Yuan measured the electrical conductivity of RuO_2 films, but fails teach or suggest that such films may be formed on a detection surface or generating any type of an alert based on that measurement.

Finally, Hacman recites "a method for surveying the temperature of the bases to be deposited upon from the vapour phase during the deposition of thin layers, which method allows a reliable determination of the moment, which is correct for beginning the vapour deposition

after a preceding heating of the base" (page 1, lines 48-55). Hacman provides that "control devices may be used, which permit vapour deposition only, when the resistance value of the base surveyed has dropped to a predetermined value" (page 2, lines 68-71).

Hacman, however, fails to teach that the control devices are used during vapor deposition (e.g., "[m]easuring the electric resistance of layers deposited from the vapour phase is outside the scope of the present invention" page 2, lines 46-49). Thus, Hacman fails to teach either a detector for measuring electrical conductivity between electrodes, or generating an alert based on the detection of an electrically conductive film of a gas phase material comprising ruthenium, as recited in claims 1, 6, 10, 12 or 17.

In addition, Applicant respectfully submits that Koda in view of Hacman and Ohlsson or Yuan fail to support the suggestion or motivation to modify the references or to combine reference teachings as asserted by the Examiner. If the proposed modification or combination of the prior art would change the principle operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). Applicant respectfully submits that the proposed modification of Hacman would change its principle of operation.

Hacman provides that "[t]he invention has the object of providing a method for surveying the temperature of the basis to be deposited upon from the vapour phase during the deposition of thin layers" (page 1, lines 48-51), and that "[t]he method according the invention is characterised [*sic*] in that the attaining of the predetermined temperature and accordingly the earliest moment for beginning the vapour deposition is ascertained by measuring continuously the electrical insulation resistance of a base not yet deposited upon while being heated" (page 1, lines 58-64). However, Hacman states that "[w]hen vapour-depositing a layer, the resistance may change discontinuously when the layer material has a higher electric conductivity than the base . . . [and] [m]easuring the electric resistance of layers deposited from the vapour phase is outside the scope of the present invention" (page 2, lines 42-48).

The proposed modification or combination would use the device of Hacman to detect the ruthenium compounds of Koda, which are asserted to be conductive based on Ohlsson or Yuan.

However, the invention taught by Hacman is not intended to measure the electric resistance of layers deposited from the vapour phase (e.g., the resistance of vapor-deposited layers may change discontinuously when the layer material has a higher electric conductivity than the base and so measuring the electric resistance of layers deposited from the vapor phase is outside the scope of Hacman's invention). Thus, the suggested modification of Hacman would change the basic principle under which the device was designed to operate (e.g., surveying and attaining of the predetermined temperature of the base).

With respect to the Examiner's assertion that the claims are unpatentable over Koda in view of Philips and Ohlsson or Yuan, Applicant respectfully submits that the cited documents fail to teach or suggest all the elements of claims 1, 6, 10, 12, and 17. For example, Koda, Philips, Ohlssson, and Yuan fail to teach or suggest, besides other things, generating an alert based on the detection of an electrically conductive film comprising ruthenium, as recited in claims 1, 6 and 10. In addition, Koda, Philips, Ohlssson, and Yuan fail to teach or suggest a detector measuring electrical conductivity between the first and second electrodes, where the detector generates an alert when an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes, as recited in claims 12 and 17.

As discussed above, Koda and Ohlsson fail to teach or suggest either a detector for measuring electrical conductivity between electrodes, and Koda, Ohlsson and Yuan fail to teach or suggest generating any type of an alert when an electrically conductive film comprising ruthenium forms on the detection surface. In addition, Philips fails to teach or suggest a detector measuring electrical conductivity between the first and second electrodes, where the detector generates an alert when an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes. In contrast, Philips recites "a control" that is "a glass plate on which electrodes are deposited by evaporation, which are used to measure . . . the resistance of the deposited metal layer and that of the oxide layer formed from the metal layer" (page 5, lines 29-31). Philips, however, fails to teach or suggest that a detector

generates an alert when an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes.

In addition, Applicant respectfully submits that Koda in view of Philips and Ohlsson or Yuan fail to provide some suggestion or motivation to modify the references or to combine reference teachings, as asserted by the Examiner. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Applicant respectfully submits that the cited documents fail to suggest the desirability of combining the documents, and therefore fail to provide some suggestion or motivation to modify or to combine the documents.

Philips provides "a method according to which a substrate . . . is equipped with a layer of metal which is then subjected to the influence of an oxidizing atmosphere and is mainly characterized by the fact that several metal layers are deposited in succession, each of which is oxidized separately and almost entirely" (page 3, lines 5-8). Philips recites that "metals suitable for application as sources to be oxidized are in order chromium, tantalum, molybdenum . . .[and] [t]he alloys of nickel and chromium are particularly well suited, for example, nichrome" (page 4, lines 13-15). Koda provides that oxidized samples of ruthenium were captured on polyethylene film and detected using neutron activation. The cited documents, however, fail to suggest the desirability of depositing several layers of ruthenium oxide of Koda in succession on the substrate of Philips.

The Examiner has asserted that the device and method of Philips could be used to conductometrically measure oxidized samples of ruthenium of Koda so as to remove the need for radioactive materials in the detection. As noted above in the genral discussion of the obviousness rejections, however, the proposed modification is based on the unsupported assumption that the methods of Koda would produce an electrical conductive film comprising ruthenium. However, nothing in Koda teaches or suggests that the ruthenium deposited on the polyethylene film would or could ever form an electrically conductive film. In fact, Koda uses neutron activation because it is recognized as being a highly sensitive elemental analysis

technique used when the material to be detected is present in minute quantities (e.g., 1 and 5 ppb). Thus, one skilled in the art considering the use of nuclear activation for detection of trace amounts of ruthenium would not be motivated to replace this highly sensitive detection technique with a device or method that requires sufficient ruthenium to form an electrically conductive film.

With respect to the Examiner's assertion that the claims are unpatentable over Koda in view of Tyutnev and Ohlsson or Yuan, Applicant respectfully submits that the cited documents fail to teach or suggest all the elements of claims 1, 6, 10, 12, and 17. For example, Koda, Tyutnev, Ohlssson, and Yuan fail to teach or suggest, besides other things, generating an alert based on the detection of an electrically conductive film comprising ruthenium, as recited in claims 1, 6 and 10. In addition, Koda, Tyutnev, Ohlssson, and Yuan fail to teach or suggest a detector measuring electrical conductivity of a film comprising ruthenium on a detector surface between the first and second electrodes, where the detector generates an alert when an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes, as recited in claims 12 and 17. Finally, Koda, Tyutnev, Ohlssson, and Yuan fail to teach or suggest a sensor for detecting a gas phase material comprising ruthenium in an environment, where the sensor includes a heater capable of providing thermal energy to a detection surface, as recited in claim 17.

As discussed above, Koda and Ohlsson fail to teach or suggest either a detector for measuring electrical conductivity between electrodes, and Koda, Ohlsson and Yuan fail to teach or suggest generating any type of an alert when an electrically conductive film comprising ruthenium forms on the detection surface. In addition, Tyutnev fails to teach or suggest a sensor for detecting a gas phase material comprising ruthenium that includes a detection surface that has a material on which the gas phase material comprising ruthenium preferentially deposits. In contrast, Tyutnev has "conducted measurements of the radiation-induced surface conductivity using specially constructed samples" (page 714, first paragraph of "Experimental Results and Discussion" section). Tyutnev, however, does not teach or suggest a detection surface that

comprises a material on which an electrically conductive film comprising ruthenium preferentially deposits. In addition, Tyutnev fails to teach a detector measuring electrical conductivity between the first and second electrodes, where the detector generates an alert when an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes. Finally, Applicant is unable to find a heater capable of providing thermal energy to a detection surface taught in Tyutnev. As such, Tyutnev fails to anticipate the subject matter of claim 17.

In addition, Applicant respectfully submits that Koda in view of Tyutnev and Ohlsson or Yuan fail to provide some suggestion or motivation to modify the references or to combine reference teachings, as asserted by the Examiner. If the proposed modification or combination of the prior art would change the principle operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. Applicant respectfully submits that the proposed modification of Tyutnev with the ruthenium oxide of Koda would change Tyutnev's principle of operation.

Tyutnev attempts to "clarify the experimental as well as theoretical background concerning the radiation-induced surface conductivity" (page 710, first paragraph). The Examiner's proposed modification or combination would use the device of Tyutnev to detect the ruthenium compounds of Koda, which are asserted to be conductive based on Ohlsson or Yuan. However, the principal interest of Tyutnev's paper is to better understand radiation-induced surface conductivity, and not the conductivity of metal layers deposited from a vapour phase. Thus, the suggested modification of Tyutnev would change the basic principle under which the device was designed to operate.

Based on the foregoing arguments, the Applicant respectfully submits the cited documents fail to support a *prima facie* case of obviousness for independent claims 1, 6, 10, 12 or 17.

Applicant submits that claims 3, 7-9, 11, 13-16, 18-21, and 28, being dependent on independent claims 1, 6, 10, 12 and 17 that are otherwise allowable for reasons set forth herein, are likewise allowable over the cited art.

Reconsideration and withdrawal of the rejection of claims 1, 3, 6-21, and 28 under 37 C.F.R. §103(a) as being unpatentable over Koda in view of Ohlsson or Yuan and Hacman, Philips or Tyutnev is respectfully requested.

Examiner's Comments Regarding Withdrawn § 112 Rejection

Applicant notes that the Examiner has withdrawn the previous rejection under 35 U.S. C. 112 1st paragraph because of Applicant's arguments. However, on page 2 of the Office Action, the Examiner asserted that:

> "Due to the comments in the response received April 30, 2002 relative to the previous rejection under 35 U.S. C. 112 1st paragraph, applicant is prohibited from arguing that the alert is anything more than a change in the conductivity being noticed or the structure for generating an alert being more complex than structure that can convert the measurement into a value that is readable by an operator. Thus any device which displays the measurement inherently meets the claimed structure or step for generating an alert."

Applicant respectfully traverses this asserted result from the comments presented in their 30 April 2002 response. Applicant respectfully submits that in no way did the arguments presented in the 30 April 2002 response limit the interpretation of the specification and/or the claims of the present invention. The 30 April 2002 response simply provided an example showing the specification was not deficient in the description of structure for providing an alert. Applicant respectfully requests a retraction of the statement regarding the asserted prohibition of Applicant's arguments.

Summary

It is respectfully submitted that pending claims 1, 3, 6-21, 28, and 36-38 are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicant's Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

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PATENT TRADEMARK OFFICE

21 MAY 2003
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CERTIFICATE UNDER 37 CFR §1.8:
The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 21st day of May, 2003, at 2:53 pm (Central Time).

By: Sara E. Olson
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APPENDIX A - SPECIFICATION/CLAIM AMENDMENTS INCLUDING NOTATIONS TO INDICATE CHANGES MADE
Serial No.:09/388,286
Docket No.: 150.1010101

Amendments to the following are indicated by underlining what has been added and bracketing what has been deleted. Additionally, all amendments and new claims have been presented in bold font.

In the Claims

For convenience, all pending claims are shown below.

1. (THREE TIMES AMENDED) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes;

exposing the detection surface to a gas phase material comprising ruthenium, wherein an electrically conductive film **[of gas phase material]** **comprising ruthenium** forms on the detection surface between the first and second electrodes;

detecting the gas phase material from a change in conductivity between the first and second electrodes with the detector; and

generating an alert based on the detection of the gas phase material;

wherein the detection surface is selected such that the **[gas phase material]** **electrically conductive film comprising ruthenium** preferentially deposits on the detection surface.

3. A method according to claim 1, wherein the gas phase material comprises ruthenium tetraoxide.

6. (THREE TIMES AMENDED) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes, wherein the detection surface is not electrically conductive;

exposing the sensor to a gas phase material comprising ruthenium, wherein an electrically conductive film **[of the gas phase material]** **comprising ruthenium** forms on the detection surface between the first and second electrodes;

detecting electrical conductivity of the electrically conductive film between the first and second electrodes with the detector; and

generating an alert based on the detection of the electrical conductivity of the electrically conductive film;

wherein the detection surface is selected such that the **[gas phase material]** **electrically conductive film comprising ruthenium** preferentially deposits on the detection surface.

7. A method according to claim 6, wherein the detection surface comprises a polymer.

8. A method according to claim 6, wherein the detection surface comprises polypropylene.

9. A method according to claim 6, wherein the detection surface comprises glass.

10. (THREE TIMES AMENDED) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes;

heating the detection surface above ambient temperature;

exposing the detection surface to a gas phase material comprising ruthenium, wherein an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes;

detecting the **electrically conductive film comprising ruthenium** **[gas phase material]** from a change in conductivity between the first and second electrodes with the detector; and

generating an alert based on the detection of the **electrically conductive film comprising ruthenium** **[gas phase material]**;

wherein the detection surface is selected such that the **[gas phase material]** **electrically conductive film** comprising ruthenium preferentially deposits on the detection surface.

11. A method according to claim 10, wherein heating the detection surface comprises heating the detection surface up to about 100°C or less.

12. (THREE TIMES AMENDED) A sensor for detecting a gas phase material comprising ruthenium in an environment, the detector comprising:

first and second electrodes;

a detection surface extending between the first electrode and the second electrode, wherein the detection surface comprises a material on which **an electrically conductive film comprising ruthenium [the gas phase material comprising ruthenium]** preferentially deposits **from the gas phase material comprising ruthenium**; and

a detector measuring electrical conductivity between the first and second electrodes, where the detector generates an alert when **[an]** **the** electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes.

13. A sensor according to claim 12, wherein the detection surface comprises a polymer.

14. A sensor according to claim 12, wherein the detection surface comprises polypropylene.

15. A sensor according to claim 12, wherein the detection surface comprises glass.

16. A sensor according to claim 12, wherein the detector comprises an electronic circuit capable of detecting a change in electrical conductivity between the first and second electrodes.

17. (THREE TIMES AMENDED) A sensor for detecting a gas phase material comprising ruthenium in an environment, the detector comprising:

first and second electrodes;

a detection surface extending between the first electrode and the second electrode, wherein the detection surface comprises a material on which **an electrically conductive film**

comprising ruthenium **[the gas phase material comprising ruthenium]** preferentially deposits **from the gas phase material comprising ruthenium**;

a heater capable of providing thermal energy to the detection surface; and

a detector measuring electrical conductivity between the first and second electrodes, where the detector generates an alert when **[an]** **the** electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes.

18. A sensor according to claim 17, wherein the detection surface comprises a polymer.

19. A sensor according to claim 17, wherein the detection surface comprises glass.

20. A sensor according to claim 12, wherein the detector comprises an electronic circuit capable of detecting a change in electrical conductivity between the first and second electrodes.

21. A method according to claim 1, wherein selection of the detection surface comprises selecting a detection surface comprising polypropylene.

28. A method according to claim 10, wherein selection of the detection surface comprises selecting a detection surface comprising polypropylene.

36. (NEW) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes;

exposing the detection surface to a gas phase material comprising ruthenium, wherein an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes;

detecting the gas phase material from a change in conductivity between the first and second electrodes with the detector while exposing the detection surface to the gas phase material; and

generating an alert based on the detection of the gas phase material;

wherein the detection surface is selected such that the electrically conductive film comprising ruthenium preferentially deposits on the detection surface.

37. (NEW) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes, wherein the detection surface is not electrically conductive;

exposing the sensor to a gas phase material comprising ruthenium, wherein an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes;

detecting electrical conductivity of the electrically conductive film between the first and second electrodes with the detector while exposing the detection surface to the gas phase material; and

generating an alert based on the detection of the electrical conductivity of the electrically conductive film;

wherein the detection surface is selected such that the electrically conductive film comprising ruthenium preferentially deposits on the detection surface.

38. (NEW) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes;

heating the detection surface above ambient temperature;

exposing the detection surface to a gas phase material comprising ruthenium, wherein an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes;

detecting the electrically conductive film comprising ruthenium from a change in conductivity between the first and second electrodes with the detector while exposing the detection surface to the gas phase material; and

generating an alert based on the detection of the electrically conductive film comprising ruthenium;

wherein the detection surface is selected such that the electrically conductive film comprising ruthenium preferentially deposits on the detection surface.